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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/926,260

10/03/2001

Noriyuki Suzuki

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01/06/2004

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EXAMINER

WYROZEBSKI LEE, KATARZYNA I

ART UNIT

PAPER NUMBER

1714

DATE MAILED: 01/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/926,260

Applicant(s)

SUZUKI ET AL.

Examiner

Katarzyna Wyrozowski Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

In view of the applicant's amendment mailed on 10/09/2003 following final office action is necessitated. In the claims the applicants have inserted limitation of "without silane compound". It is examiner's position, that the applicants have support for the above limitation on page 14 (2<sup>nd</sup> paragraph) of the specification where it is stated that use of compounds such as silanes is not necessary. In addition applicant's examples do not utilize silanes.

Even though this limitation was inserted to further narrow the claims of the present invention, it does not overcome all of the rejections over the prior art of record. The example of the prior art of MATABAYAS as applied in the first office action on the merits also does not utilize silane compounds (see Example on page 21 of the prior art of MATABAYAS). The newly added claim 9 contains limitation that the phyllosilicate comprise dispersion of the phyllosilicate and water, which is also satisfied by the example on page 21). The rejection over the prior art of MATABAYAS is therefore restated in this rejection.

The newly added limitation overcomes the prior art of SUZUKI as the silane-coupling agent is one of the key components of the composition of the prior art.

Process claims as amended, however did necessitate new search, and newly found prior art is hereby applied.

***Claim Rejections - 35 USC § 102***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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2. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by MATABAYAS (WO 98/29499).

The discussion of the disclosure of the prior art of MATABAYAS from paragraph 2 of the office action mailed on 7/9/2003 is incorporated here by reference.

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over TREXLER (US 6,162,857) in view of MATABAYAS (WO 98/29499).

The example 1 (col. 12) of the prior art of TREXLER discloses process of formation of the dispersion of montmorillonite clay with AQ55, which is water dispersible, low molecular weight polyester in water to form intercalate. The composite is formed by incorporating the AQ-55/clay water dispersion into pellets and mixing pellets with high molecular weight polyester.

The difference between the present invention and the disclosure of TREXLER is step of polymerization.

With respect to the above difference, the prior art of MATABAYAS discloses clay platelets comprising oligomeric polyester, which instead of incorporation into high molecular weight polyester is polymerized to obtain polyester/clay component.

Utilizing polymerization step instead of incorporating intercalated clay into the high molecular weight polyester results also in formation of composite. Incorporating oligomeric polyester, according to the results of example 1 gives composite with better dispersion. As the prior art of MATABAYAS further disclosed polymerization of the oligomeric polyester results in more complete exfoliation of the clay platelet (page 23, lines 20-21).

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art having read and understood the disclosures of MATABAYAS and TREXLER, to polymerize the oligomers polyester of TREXLER and thereby obtain the claimed in invention. One of ordinary skill in the art can expect to obtain more complete exfoliation of the clay platelets, since monomers are equally capable of intercalation between the clay platelets.

In the amendment filed on 10/9/2003 the applicants have argued following:

a) The rejection over the prior art of MATABAYAS is traversed as stated on page 8 of applicant's arguments since the claims have been amended to exclude silane compounds.

Per statement at the beginning of this office action the example on page 21 of the prior art of MATABAYAS also does not utilize silane compound.

b) The present invention is prepared by mixing component having low degree of polymerization with dispersion of layered silicate and water.

With respect to the above argument, above limitations is not part of the claims. The claims require polyester resin composition comprising polyester resin, layered phyllosilicate without silane compound.

c) The applicants point out the examiner to comparative examples 4 disclosed in the present invention, where the phyllosilicate was not dispersed in water and therefore did not result in swell.

With respect to the above argument, the comparative example disclosed in the present invention does not overcome the prior art of MATABAYAS, since in the prior art the silicate is swelled in water in order to increase basal spacing of the clay platelets and thereby allowing easier intercalation of the oligomeric polyester.

d) The prior art of MATABAYAS discloses mixing of the clay with low degree of polymerization in powder form.

The of MATABAYAS is in powder form during the mixing, however, the clay of MATABAYAS is also swelled and intercalated before hand, therefore allowing incorporation of the oligomeric polyester between the clay platelets.

e) The process of the prior art of MATABAYAS does not teach or suggest the process of the present invention.

With respect to the above amendment, the newly amended claim is hereby rejected over the prior art of TREXLER in view of MATABAYAS. Newly applied prior art also does not disclose the silane coupling agent and contains polyester having low polymerization degree.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

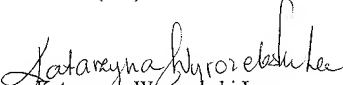
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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozubski Lee whose telephone number is (571) 272-1127. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Katarzyna Wyrozubski Lee  
Primary Examiner  
Art Unit 1714

December 18, 2003